

NON-PUBLIC?: N
ACCESSION #: 8712090208

LICENSEE EVENT REPORT (LER)

FACILITY NAME: SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1 PAGE:
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DOCKET NUMBER: 05000400

TITLE: PLANT TRIP DUE TO THE LOSS OF MAIN FEEDWATER CAUSED BY A
MISPOSITIONED
CONDENSATE RECIRCULATION VALVE
EVENT DATE: 11/08/87 LER #: 87-063-00 REPORT DATE: 12/07/87

OPERATING MODE: 1 POWER LEVEL: 022

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR
SECTION
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: R. SCHWABENBAUER - REGULATORY COMPLIANCE TECHNICIAN
TELEPHONE #: 919-362-2669

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT: The plant was operating in Mode 1, Power Operation, at 22 percent reactor power on November 8, 1987. The plant was in the start-up process following a scheduled and was preparing to increase power from 100 MWe to 150 MWe with only the '1A' Feedwater train in service. 1A Condensate Pump tripped on low discharge pressure which caused 1A Condensate Booster Pump and 1A Main Feedwater Pump to trip, which resulted in a total loss of Main Feedwater. The reactor and turbine were then manually tripped at 1625 hours. The Main Steam Isolation Valves were shut in order to limit plant cooldown and the Auxiliary Feedwater System actuated to restore Steam Generator water levels. All plant systems responded as required.

The immediate cause of the event was the condensate recirculation valve was in the "OPEN" position rather than "MODULATE" position as required by normal plant operation. This caused the Condensate Pump and Condensate Booster Pump to be operating at near run out condition and eventually tripped the Condensate Pump on low discharge pressure. The root cause of the event was personnel error as plant operators were not fully aware of all plant conditions. (i.e., the recirculation valve being in the open position.) Corrective actions are Operating Procedure (OP)-134, Condensate

System, has been revised incorporating lessons of this events, an operating shifts were briefed on the causes and consequences of this event, and Post-Turnover briefings are being conducted to ensure understanding of plant conditions for the operating crew.

This event is being reported in accordance with 10CFR50.73(a)(2)(iv) as an Engineered Safeguards System Feature and Reactor Protection System Actuation.

(End of Abstract)

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DESCRIPTION

The plant was operating in Mode 1, Power Operation, at 22 percent reactor power on November 8, 1987. The plant was in the start-up process following a scheduled outage. The Turbine Generator (EIIS:TA) outage was to be increased from 100 MWe to 150 MWe at a rate of 3MW/min. Due to the power range at this time, only the '1A' Main Feedwater (EIIS:SJ) train was in service.

As the load increase was started, the operator noted that the 1A Condensate Booster Pump (CBP) (EIIS:SD) Controller was in the maximum demand position. 1A Main Feedwater Pump (MFP)(EIIS:SJ) suction pressure and 1A CBP discharge pressure were approximately 430 psig; 1A Condensate Pump (CP)(EIIS:SD) discharge pressure was approximately 200 psig. It was noted that the Condensate Recirculation Valve, 1CE-293, was in the "OPEN" position rather than the "MODULATE" (MODU) position as required by normal plant operation. In effect, the 1A CBP and 1A CP were operating at near pump "run out" condition. The Shift Foreman determined that the safest way to avoid a flow disturbance, which would cause a CP or CBP trip, would be to slowly close the manual recirculation path isolation valve, 1CE-294. An operator was dispatched to do this; however, there was no attempt to halt the turbine power increase process.

As turbine power approached 105 MWe, before any possible operator action on the manual recirculation path isolation valve could be made, 1A CP discharge pressure fell below the trip setpoint of 195 psig. After the 5 second trip delay, the 1A CP tripped and initiated the trip of the 1A CBP and 1A MFP resulting in a total loss of Main Feedwater. Since feedwater flow could not be immediately restored, the reactor and the turbine manually tripped at 1625 hours. The main Stream Isolation Valves (EIIS:SB) were shut in order to limit plant cooldown and Steam Generator (EIIS:TB) water levels were restored with the automatic actuation of the Auxiliary Feedwater System (AFW) (EIIS:BA). All plant systems responded as required and the plant was stabilized in Mode 3, Hot Standby.

CAUSE:

The immediate cause of the event was that Condensate Recirculation Valve 1CE-293, was in the open position rather than the modulate position as required for normal plant operation. This resulted in the 1A CP and 1A CBP to be operating at near run out condition and eventually tripping 1A CP on low discharge pressure.

The root cause of the event was personnel error as plant operators were not fully aware of all plant conditions (i.e., the recirculation valve being in the open position). Shift turnover notes did indicate that valve 1CE-293 was

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in an abnormal condition. The position resulted from secondary plant chemistry operations conducted earlier in the week. The plant had been in a long path recirculation mode for the purpose of establishing secondary plant chemistry control prior to plant start-up. In this mode, Operation Procedure (OP)-134, Condensate System, permits placing valve 1CE-293 in the "OPEN" position in order to increase recirculation flow. The procedure did not specifically address returning the valve switch to the "MODULATE" position, which is the assumed position for normal plant operation, when returning to the normal or short path recirculation mode.

ANALYSIS:

This event is being reported in accordance with 10CFR50.73(a)(2)(iv) as an Engineered Safeguards System Feature and Reactor Protection System Actuation.

There were no safety consequences as a result of this event; although operation of a safety system was challenged (AFW). The AFW system started as required upon loss of Main Feedwater to maintain water levels in the Steam Generators.

Other events reported where the loss of Main Feedwater resulted in a plant trip were reported in LERs: 87-005-00, 87-008-00, 87-013-00, 87-017-00, 87-018-00, 87-019-00, 87-024-00, 87-025-00, 87-028-00, 87-031-00, 87-037-00.

CORRECTIVE ACTIONS/ACTIONS TO PREVENT RECURRENCE:

1. The Shift Turnover process has been enhanced. Previously, the turnover process included a briefing by the off going Shift Foreman and a one-on-one turnover of each position. Plant direction has been issued through a Night Order to require a Post-Turnover briefing by the Balance of Plant (BOP), Reactor Operator (RO), Senior Control Operator (SCO),

each Auxiliary Operator (AO), and the Shift Foreman (SF) to ensure the operating crew has a full understanding of plant conditions. Operations Management Manual (OMM)-001, Operations-Conduct of Operations, is being revised to incorporate this action.

2. Operating Procedure (OP)-134, Condensate System, has been revised incorporating the lessons of this event.

3. Following the event operating shifts were briefed on the causes and consequences of this event.

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CP&L
Carolina Power & Light Company

HARRIS NUCLEAR PROJECT
P.O. Box 165
New Hill, NC 27562

DEC 07, 1987

File Number: SHF/10-13510C
Letter Number: HO-870563 (0)

U. S. Nuclear Regulatory Commission
ATTN: NRC Document Control Desk
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1
DOCKET NO. 50-400
LICENSE NO. NPF-63
LICENSEE EVENT REPORT 87-063-00

Gentlemen:

In accordance with Title 10 to the Code of Federal Regulations, the enclosed Licensee Event Report is submitted. This report fulfills the requirement for a written report within thirty (30) days of a reportable occurrence and is in accordance with the format set forth in NUREG-1022, September, 1983.

Very truly yours,
/s/ R. A. Watson
R. A. Watson
Vice President

Harris Nuclear Project

RAW:lkd

Enclosure

cc: Dr. J. Nelson Grace (NRC - RII)

Mr. B. Buckley (NRR)

Mr. G. Maxwell (NRC - SHNPP)

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